

Mineral Industry Surveys

For information, contact:

Peter H. Kuck, Nickel Commodity Specialist

U.S. Geological Survey

989 National Center

Reston, VA 20192

Telephone: (703) 648-4965, Fax: (703) 648-7757

E-mail: pkuck@usgs.gov

Barbara J. McNair (Data)

Telephone: (703) 648-7952

Fax: (703) 648-7975

MINES FaxBack: (703) 648-4999

Internet: <http://minerals.usgs.gov/minerals>

NICKEL IN JUNE 1999

In June, reported domestic nickel consumption on a daily average basis was 5% greater than that of May, according to the U.S. Geological Survey. Average daily consumption by the stainless steel industry in June was 14% higher than that of the revised May average of 137 metric tons (t). Daily consumption by alloy steel producers—a considerably smaller tonnage than that of stainless steel—also increased by 14%. Sales to plating companies averaged 40 metric tons per day (t/d), up 8% from the May sales figure of 37 t/d. However, these increases were partially offset by decreased consumption of elemental nickel to make superalloys, nickel-base corrosion resistant alloys, and copper-nickel alloys. Percentages reported in this paragraph may not be verifiable owing to concealment of individual company proprietary data.

On June 30, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 3,830 t—6% more than the 3,600 t (revised) for May 31 but still 39% less than the 1998 high of 6,330 t (revised) reached on December 31, 1998. Stocks in London Metal Exchange (LME) warehouses worldwide decreased 8% during June to 52,836 t. LME stocks at yearend 1998 were 65,964 t. Preliminary data collected by the International Nickel Study Group indicated that, at the end of May, world nickel producers (excluding those in Austria, China, the former Yugoslavia, and the Ural area of Russia) had approximately 103,500 t of Ni in primary products in stock, of which 76,600 t were Class I materials. Class I materials are refined products with a nickel content of 99% or greater (electrolytic cathode, pellets, briquets, rondelles, powder, etc.). Class II materials include ferronickel, nickel oxide sinter, and East Asian utility nickel—products with a nickel content less than 99%.

The United States imported 55,000 t of primary nickel during the first 5 months of 1999, 22% less than the tonnage for the corresponding period of 1998. Class I materials accounted for 85% of total primary imports received during the first 5 months of 1999. Trade data for June 1999 will appear in a subsequent issue.

Nickel exploration in Canada—An update [Part 2 of 2] (Part 1 appeared in “Nickel in May 1999.”)

Lac Rocher, Quebec.—Donner Minerals Limited has a C\$1 million exploration program underway in the Lac Rocher area of northwestern Quebec. Lac Rocher is roughly 230 kilometers southeast of the southern tip of James Bay and about 40 kilometers southeast of Lac Evans. The nearest town of any size is Matagami, 120 kilometers to the southwest. Donner is conducting the bulk of its field work on ground optioned from Falconbridge Limited and Noranda Inc. (Donner Minerals Limited, 1999c). The field work consists of geologic mapping, prospecting, airborne and ground geophysical surveying, and diamond drilling. Helicopter-borne electromagnetic and magnetic surveys have now been completed over all of the optioned claims. A portion of the area was previously surveyed by the Canadian Government. Several geophysical anomalies initially identified by the Government have been resurveyed in detail by Donner. The company is planning to diamond drill key anomalies that cannot be explained by ground investigations.

Exploration activity in the Lac Rocher area soared after Nuinsco Resources Limited announced last January that one of its drilling crews had intersected a 61.5-meter-thick zone of disseminated and massive sulfides, assaying 1.69% Ni and 0.49% Cu. (*See* Nickel in December 1998.) The assays also revealed significant cobalt, palladium, and platinum values. The intersection included a 3.2-meter interval of sulfides assaying 10.8% Ni. Six months prior to Nuinsco's discovery, Falconbridge completed a regional compilation of geologic, airborne magnetic, electromagnetic, and lake sediment geochemical data. Possession of this information allowed Falconbridge to identify and stake several promising targets immediately after Nuinsco announced the assays from its discovery hole, LR-1-99.

In February, Donner entered into an agreement with Falconbridge. Donner now has an option to earn a 50% interest

in 24 claim blocks (511 claims on 8,176 hectares) previously staked by Falconbridge. Three of Falconbridge's 24 claim blocks are contiguous to the eastern and southern sides of the Nuinsco property. To earn the 50% interest, Donner must spend C\$2 million exploring the claims over the next 2 years (Donner Minerals Limited, 1999a). Donner also signed a joint agreement with Noranda and Falconbridge a month later. This second agreement gave Donner options on 1,100 claims acquired by Noranda in the Lac Rocher area. The 1,100 claims cover 17,000 hectares (Donner Minerals Limited, 1999b). Noranda, which owns 49.9% of Falconbridge's common stock, has been mining zinc and copper in the Matagami district for more than 20 years.

The assay results from subsequent holes drilled by Nuinsco were not as good as expected. However, drill hole 99-34 did intersect 8.2 meters of mineralization grading 1.89% Ni and 0.58% Cu (Northern Miner, 1999a). Nuinsco has identified at least 23 targets for future drill testing (Northern Miner, 1999c). In July, Nuinsco optioned 144 claims held by Freewest Resources Canada Inc. (Northern Miner, 1999b).

Raglan district, Quebec.—In April 1998, the Raglan mining and milling complex reached commercial production. The new nickel-copper mine is in the Nunavik region of northern Quebec—near Katinniq, at the tip of the Ungava Peninsula. Raglan has an annual rated capacity of 21,000 t of nickel in concentrate but reportedly can be expanded to 30,000 t per year if market conditions warrant (Falconbridge Limited, 1999). In 1998, Raglan recovered 636,000 t of ore averaging 3.14% Ni and 0.96% Cu. This included pre-production material and equated to a mine production figure of 16,400 tons of Ni in concentrate.

In 1998, Falconbridge discovered a new deposit at East Lake, 13.5 kilometers west of the Katinniq concentrator. According to company officials, a minimum of 1.15 million t of indicated resources have been delineated at East Lake. The newly discovered resources grade 3.71% Ni, 1.09% Cu, and 0.08% Co (Falconbridge Limited, 1999). At yearend 1998, Raglan had 19.4 million t of proven and probable reserves, averaging 2.85 % Ni and 0.77% Cu. In addition to the reserves, Raglan had 5.25 million t of indicated and inferred resources averaging 2.27% Ni and 0.82% Cu. All of the ores occur in the northeastern part of the Cape Smith fold belt. The fold belt extends across the entire width of the Ungava Peninsula—from Cape Smith on Hudson Bay to Kangiqsujuaq—and has been a nickel exploration target for more than 30 years. The fold belt is also referred to as the Ungava Nickel Belt.

Canmine projects in Manitoba.—In 1996-97, the Geological Survey of Canada published new aeromagnetic maps suggesting that a magnetic lineament at the northern end of the Thompson

Nickel Belt of Manitoba continues northeast toward Cape Churchill. At least 18 significant nickel deposits already have been discovered along the Thompson Nickel Belt, which extends from Willam Lake more than 200 kilometers northeast to Moak. Some geologists have suggested that this newly identified lineament could connect with the Ungava Nickel Belt on the east side of Hudson Bay. Both the Thompson and Ungava nickel belts are located at the boundary of the Churchill and Superior Geologic Provinces and have a number of geologic similarities (Canmine Resources Corp., 1999).

To test this theory, Canmine Resources Corp. acquired more than 2,000 square kilometers of claims northeast and west of the Thompson Nickel Belt. In the winter of 1998, Canmine crews drilled a promising geophysical anomaly at Osik Lake, some 70 kilometers west of Thompson. The anomaly turned out to be a large peridotite body with a background nickel content of 0.22% Ni. The company plans to drill more magnetic anomalies along the lineament. The drilling program is part of Canmine's BINCO nickel project.

Canmine has a second project underway in Manitoba. In 1996, the company acquired the Maskwa property, 120 kilometers northeast of Winnipeg. In May 1998, Canmine filed an initial proposal with Environment Manitoba to construct a C\$20 million mine at Maskwa. The environmental review process typically takes 9 to 18 months. According to company officials, the main deposit at Maskwa has 2.93 million t of indicated resources grading 1.27% Ni, 0.21% Cu, and 0.04% Co.

References Cited

- Canmine Resources Corporation, 1999, Mining & exploration—Project portfolio: London, Ontario, Canmine Resources Corp., August 24, 8 p. [Also available at URL <http://www.canmine.com/projects.htm>].
- Donner Minerals Limited, 1999a, News release—[Option agreement with Falconbridge Limited]: Vancouver, British Columbia, Donner Minerals Limited press release, February 23, 2 p. plus map.
- 1999b, News release—[Option agreement with Noranda Inc. and Falconbridge Limited]: Vancouver, British Columbia, Donner Minerals Limited press release, March 5, 2 p.
- 1999c, News release—[Lac Rocher field program]: Vancouver, British Columbia, Donner Minerals Limited press release, June 21, 1 p.
- Falconbridge Limited, 1999, Annual report—1998: Toronto, Ontario, 53 p.
- Northern Miner, 1999a, Hopes dim at Lac Rocher: Northern Miner, v. 85, no. 15, June 7-13, p. 3.
- 1999b, Nuinsco options new ground: Northern Miner, v. 85, no. 21, July 19-25, p. 16.
- 1999c, Nuinsco drills at Lac Rocher: Northern Miner, v. 85, no. 28, September 6-12, p. 14.

TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
1998:					
June	6,890 r/	1,080	397	8,370 r/	52,500 r/
July	6,710	1,400	455	8,570	61,000 r/
August	6,290	1,130	446	7,870	68,900 r/
September	6,490	924	455 r/	7,870 r/	76,800 r/
October	6,850	999	553	8,400	85,200 r/
November	5,910	1,050	490	7,450	92,600 r/
December	6,000	1,140	650	7,790	100,000 r/
January-December	81,400 r/	13,700	5,290 r/	100,000 r/	XX
1999:					
January	6,310	987	399	7,700	7,700
February	6,540 r/	824	669	8,030 r/	15,700 r/
March	7,820	487	812	9,120	24,800 r/
April	7,670 r/	845	602	9,120 r/	34,000 r/
May	8,100 r/	1,150	692	9,940 r/	43,900 r/
June:					
Steel:					
Stainless and heat resisting	3,030	1,190	W	4,210	23,300
Alloy (excludes stainless)	392	W	W	392	3,220
Superalloys	1,490	--	W	1,490	8,350
Copper-nickel alloys	W	--	--	W	W
Electrical, magnetic, and expansion alloys	--	--	--	--	--
Other nickel & nickel alloys	47	--	--	47	216
Other nickel & nickel alloys	1,130	--	W	1,130	5,340
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	1,190	--	W	1,190	6,940
Chemical and chemical uses	W	W	W	W	W
Other uses	934	8	695	1,640	6,680
Total reported	8,210 2/	1,200	695	10,100	54,000
Total all companies (calc) 3/	XX	XX	XX	14,900	79,800
1999: January-June	44,600	5,490	3,870	54,000	XX
1998: January-June	43,100	7,090	2,240	52,500	XX

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Of consumption, 6,320 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (67.6852%) to apparent primary consumption for 1997.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS,
BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
1998:				
June	3,580	1,140	286	5,010
July	3,070	542	303	3,910
August	2,540	769	410	3,710
September	3,000	780	392	4,180
October	3,170	726	452	4,350
November	3,090	471	415	3,970
December	6,330	877	1,420	8,620
1999:				
January	5,770 r/	308	1,300	7,370
February	4,380	112	999	5,500
March	3,580	354	390	4,320
April	3,110 r/	97	322	3,530 r/
May	3,600 r/	145	311	4,060 r/
June:				
Steel (stainless, heat resisting and alloy)	1,530	110	(3/)	1,640
Nonferrous alloys 4/	2,160	--	(3/)	2,160
Foundry (cast irons)	(3/)	--	(3/)	(3/)
Chemical (catalysts, ceramics, plating salts, etc.) and unspecified uses	142	--	312	454
Total	3,830	110	312	4,250

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks held by companies that consume nickel in more than one end-use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in the "Chemical and unspecified uses" category.

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

Period	Consumption			Stocks		
	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap
1998:						
June	3,080	873	3,950	5,030	181	5,210
July	4,190	942	5,130	5,010	185	5,200
August	3,680	809	4,490	4,520	160	4,680
September	3,470	822	4,300	4,320	157	4,470
October	3,150	737	3,890	4,600	145	4,740
November	3,070	783	3,850	4,850	156	5,000
December	4,290	623	4,910	4,480	161	4,640
January-December	47,300	9,640	56,900	XX	XX	XX
1999:						
January	4,220	797	5,010	4,060	153	4,210
February	3,840	748	4,590	4,260	156	4,420
March	3,900	850	4,750	4,260	159	4,420
April	4,020	967	4,990	3,680	158	3,840
May	4,380	698	5,080	3,230	171	3,400
June	4,620	1,320	5,940	2,820	217	3,030
1999: January-June	25,000	5,380	30,400	XX	XX	XX
1998: January-June	25,400	4,920	30,300	XX	XX	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of origin	Cathodes, pellets, and briquets	Powder and flakes	Ferro-nickel	Metal-lurgical-grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
1998:										
May	10,900	769	1,320	5	306	278	248	13,800	74,000	48
June	13,100	1,150	1,440	27	323	238	264	16,500	90,500	40
July	5,870	664 5/	983	--	327	1,420	250	9,510	100,000	66
August	7,550	734	708	235	325	186	188	9,930	110,000	73
September	9,560	577	1,330	401	271	266	258	12,700	123,000	66
October	11,100	1,100	741	495	273	213	271	14,200	137,000	50
November	7,850 5/	616	999	433	300	174	228	10,600	147,000	121
December	6,710	774	296	500	315	169	321	9,080	156,000	84
January-December	120,000	9,850	12,800	2,140	4,210	4,290	3,140	156,000	XX	819
1999:										
January	9,930	697	1,230	185	281	160	181	12,700	12,700	83
February	6,540	783	1,440	302	265	211	240	9,780	22,400	23
March	10,600	926	836	366	394	178	235	13,500	36,000	78
April	6,230	769	1,150	306	414	181	302	9,350	45,300	103
May:										
Australia	1,180	--	--	--	--	--	--	1,180	4,290	--
Brazil	56	--	--	--	--	--	--	56	984	--
Canada	4,430	431	--	224	91	177	1	5,350	27,600	2
Colombia	--	--	--	--	--	--	--	--	717	--
Dominican Republic	--	--	462	--	--	1	--	463	1,590	--
Finland	217	67	--	--	--	--	62	346	2,220	--
France	156	--	--	--	101	--	8	265	1,270	4
Germany	3	(6/)	--	--	47	1	9	60	270	60
Japan	--	(6/)	--	--	11	--	49	60	444	9
Mexico	--	--	--	--	7	121	2	130	519	3
New Caledonia	--	--	398	--	--	--	--	398	3,220	--
Norway	2,360	--	--	--	9	--	--	2,370	7,720	--
Russia	1,340	36	--	--	--	--	--	1,380	4,900	--
South Africa	--	--	--	--	--	--	--	--	43	--
United Kingdom	19	30	--	--	101	--	1	151	597	--
Zimbabwe	76	--	--	--	--	--	--	76	500	--
Other	72	10	--	8	61	1	58	211	918	3
Total	9,920	575	860	231	428	303	190	12,500	57,800	80
1999: January-May	43,200	3,750	5,520	1,390	1,780	1,030	1,150	57,800	XX	367
1998: January-May	58,300	4,230	6,340	45	2,080	1,620	1,360	74,000	XX	320

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ All or part of these data have been referred to the Bureau of the Census for verification.

6/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date	Wrought nickel
1998:										
May	72	150	8	55	1,230	1,300	452	3,270	17,700	175
June	269	72	2	98	635	2,720	207	4,000	21,700	190
July	33	48	--	132	996	1,710	265	3,180	24,900	69
August	69	61	--	116	1,080	2,440	356	4,120	29,000	65
September	104	85	1	111	971	1,270	336	2,870	31,900	80
October	142	95	--	138	1,060	1,940	235	3,610	35,500	127
November	38	108	1	158	1,300	1,040	156	2,800	38,300	39
December	217	90	1	96	1,120	3,340	367	5,230	43,500	77
January-December	1,210	1,080	918	1,230	12,700	22,400	4,010	43,500	XX	991
1999:										
January	93	60	--	100	615	787	337	1,990	1,990	149
February	11	93	3	168	812	1,010	337	2,440	4,430	59
March	36	90	1	105	958	1,850	460	3,500	7,930	63
April	15	69	1	161	989	2,070	334	3,640	11,600	77
May:										
Australia	--	--	--	--	--	--	(4/)	(4/)	17	--
Belgium	--	4	--	--	100	--	--	104	306	(4/)
Canada	--	17	--	102	603	147	25	894	5,230	14
Germany	--	5	--	--	48	1	3	57	329	4
India	--	1	--	--	--	14	--	15	97	1
Italy	--	1	--	--	--	--	4	5	11	(4/)
Japan	--	1	--	--	66	26	286	379	1,210	1
Korea, Republic of	--	1	--	--	--	769	33	803	2,220	--
Mexico	56	3	--	--	--	14	53	126	469	24
Netherlands	--	1	--	--	29	1	9	40	137	--
South Africa	--	--	--	--	--	78	1	79	427	--
Spain	--	--	--	--	--	--	--	--	1,560	--
Sweden	--	4	--	--	62	4	--	70	121	--
Taiwan	--	--	--	--	--	473	33	506	1,740	--
United Kingdom	--	2	--	(4/)	8	58	10	78	171	4
Other	22	4	--	(4/)	4	16	66	112	806	73
Total	78	44	--	102	920	1,600	523	3,270	14,800	121
1999: January-May	232	357	4	638	4,300	7,320	1,990	14,800	XX	468
1998: January-May	334	515	913	383	5,540	7,910	2,090	17,700	XX	346

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
1998:									
May	156	159	364	216	2	74	104	1,080	5,300
June	240	232	377	88	2	120	70	1,130	6,430
July	195	173	307	166	(2/)	138	66	1,050	7,480
August	169	139	279	168	1	69	25	851	8,330
September	230	129	284	124	9	84	49	910	9,240
October	207	121	228	117	--	130	41	844	10,100
November	228	130	331	185	--	150	41	1,070	11,100
December	130	276	261	189	--	112	16	984	12,100
January-December	2,250	2,140	3,710	1,860	19	1,600	559	12,100	XX
1999:									
January	239	188	277	166	--	120	38	1,030	1,030
February	198	253	339	172	1	37	48	1,050	2,080
March	291	311	427	200	2	135	79	1,440	3,520
April	265	222	344	137	2	33	72	1,070	4,590
May:									
Australia	81	--	--	--	--	--	--	81	427
Belgium	11	--	--	(2/)	--	--	--	12	89
Canada	38	--	2	--	--	4	12	57	226
France	--	1	113	6	--	(2/)	(2/)	120	595
Germany	43	94	67	226	--	98	6	534	1,920
Italy	--	52	3	--	--	--	(2/)	56	450
Japan	--	--	(2/)	3	(2/)	109	3	116	245
Mexico	--	--	--	--	--	--	3	3	30
Netherlands	--	--	--	--	--	15	13	27	129
South Africa	37	--	--	--	--	--	--	37	214
Sweden	--	--	152	7	--	4	--	164	838
United Kingdom	38	26	1	(2/)	--	14	1	80	564
Other	(2/)	(2/)	10	--	(2/)	(2/)	37	47	202
Total	248	174	348	242	(2/)	244	75	1,330	5,920
1999: January-May	1,240	1,150	1,730	917	5	568	312	5,920	XX
1998: January-May	848	938	1,640	820	7	796	251	5,300	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
1998:									
May	552	317	380	921	2	124	274	2,570	11,400
June	476	256	206	767	7	105	259	2,080	13,400
July	633	293	186	691	16	102	327	2,250	15,700
August	462	356	143	898	11	77	260	2,210	17,900
September	492	301	196	804	4	158	210	2,170	20,100
October	559	373	167	732	6	134	232	2,210	22,300
November	460	313	140	661	7	61	150	1,790	24,100
December	577	456	171	472	1	56	218	1,950	26,000
January-December	5,970	4,150	2,500	9,100	94	1,160	3,040	26,000	XX
1999:									
January	573	264	170	575	14	104	655	2,360	2,360
February	1,090	370	129	723	6	103	263	2,680	5,040
March	896	496	163	688	7	48	206	2,500	7,540
April	910	349	168	688	72	72	266	2,530	10,100
May:									
Australia	--	(2/)	1	5	--	--	4	10	101
Belgium	2	91	4	36	--	1	--	134	216
Canada	11	38	19	43	1	40	29	181	989
France	473	39	(2/)	6	--	1	35	554	3,850
Germany	(2/)	38	2	32	(2/)	1	1	74	443
India	--	1	(2/)	--	--	--	(2/)	2	8
Ireland	--	--	67	--	--	--	1	68	139
Italy	23	2	1	123	--	(2/)	(2/)	149	543
Japan	2	10	1	144	--	1	12	170	1,280
Korea, Republic of	1	2	1	28	(2/)	(2/)	12	44	491
Mexico	5	15	38	1	1	1	26	87	470
Netherlands	--	--	(2/)	2	--	--	(2/)	2	464
Singapore	1	2	1	(2/)	--	(2/)	3	7	108
Spain	--	--	--	--	--	1	(2/)	2	19
Sweden	(2/)	--	--	11	(2/)	(2/)	--	11	46
Switzerland	(2/)	5	(2/)	48	--	(2/)	8	61	249
Taiwan	(2/)	2	(2/)	2	--	12	3	19	159
United Kingdom	20	136	40	127	(2/)	2	3	328	1,510
Other	7	15	6	6	1	3	56	93	980
Total	545	396	181	614	3	63	193	2,000	12,100
1999: January-May	4,010	1,880	811	3,290	101	390	1,580	12,100	XX
1998: January-May	2,310	1,800	1,290	4,070	41	472	1,380	11,400	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
June 1999:		
Stainless and heat resisting steels	88	12
Alloy steels	90	10
Superalloys	85	15
Copper-nickel alloys	100	(1/)
Other nickel-base alloys	100	(1/)

1/ Less than 1/2 unit.

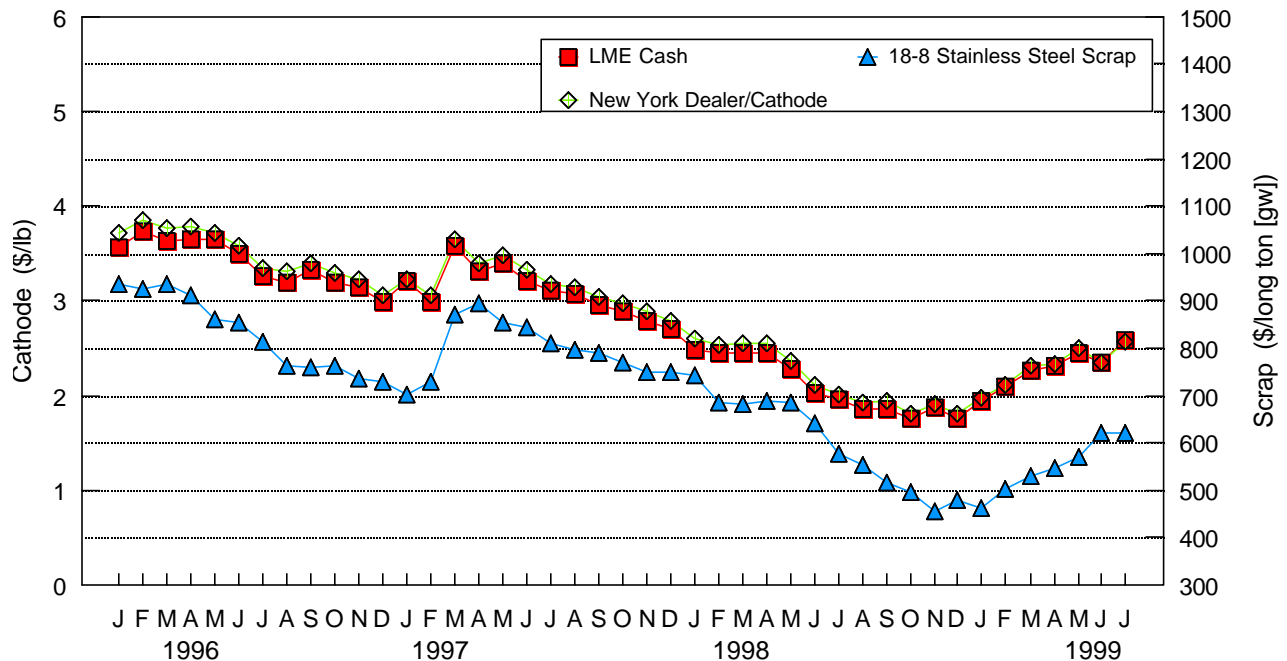
TABLE 9
NICKEL PRICES

Date	Cathode NY Dealer \$/lb.	LME Cash \$/t	LME Cash \$/lb.	18/8 Stainless steel scrap Pittsburgh \$/long ton(gw)
1999:				
Average for month of:				
May	2.500	5,399.342	2.449	570
June	2.343	5,195.000	2.356	620
July	2.568	5,700.114	2.586	620
Average for week ending:				
May 7	2.53-2.57	5,467.500	2.480	560-580
May 14	2.54-2.60	5,498.000	2.494	560-580
May 21	2.53-2.58	5,443.500	2.469	560-580
May 28	2.40-2.55	5,202.000	2.360	560-580
June 4	2.22-2.42	4,837.500	2.194	610-630
June 11	2.27-2.38	4,991.500	2.264	610-630
June 18	2.38-2.46	5,236.000	2.375	610-630
June 25	2.50-2.57	5,439.000	2.467	610-630
July 2	2.55-2.66	5,517.000	2.502	610-630
July 9	2.46-2.75	5,607.000	2.543	610-630
July 16	2.70-2.74	5,837.500	2.648	610-630
July 23	2.58-2.72	5,696.000	2.584	610-630
July 30	2.55-2.62	5,744.500	2.606	610-630

Source: Platt's Metals Week and American Metal Market.

1996-99 AVERAGE MONTHLY PRICES

(Derived from Metals Week and American Metal Market quotations)



1996-99 STOCKS

